

### Remarks

In view of the above amendments and the following remarks, reconsideration of the outstanding office action is respectfully requested.

This submission is accompanied by a Request for Continued Examination, a petition for extension of time, and an information disclosure statement. Because the Notice of Appeal was entered on May 29, 2007, and the December 29, 2007, deadline fell on a Saturday, this submission is timely. All fees should be withdrawn from Deposit Account 14-1138.

Claim 1 has been amended to recite higher stringency requirements (i.e., structural requirements of the claimed DNA molecule based on hybridization capability) as well as functional requirements of the encoded delta prime subunit (“cooperate with delta and tau subunits to form a clamp loader complex”). The latter limitation finds descriptive support in the background of the invention at page 2, line 18 to page 3, line 31; Examples 24-26, demonstrating delta prime cooperation with delta and tau subunits to form functional clamp loader complex which cooperates with beta clamp and polymerase components to form a PolIII enzyme complex; and Example 30, which demonstrates the temperature optimum for the *Aquifex aeolicus* PolIII complex.

Claims 10 and 11 have been cancelled.

Claims 1, 2, 6-9, and 12-21 are pending. Claims 17-21 stand allowed.

The U.S. Patent and Trademark Office (“PTO”) maintains its position that the single species disclosed as SEQ ID NO: 125 (*Aquifex aeolicus* *holB*, encoding delta prime subunit) does not provide descriptive support for the genus as claimed. Applicants respectfully disagree.

Given the recitation of high stringency conditions in claim 1 (hybridization and wash conditions of 5X sodium citrate buffer and at a temperature of 65°C), persons of skill in the art would expect hybridizing nucleic acids to be structurally similar to the nucleic acid sequence of SEQ ID NO: 125, and that the encoded proteins would be structurally and functionally similar. *See EnzoBiochem Inc. v. Gen-Probe Inc.*, 296 F.3d 1316, 1327, 63 USPQ2d 1609, 1615 (citing U.S. Patent and Trademark Office “Synopsis of Application of Written Description Guidelines” with approval). Given this rational expectation, persons of skill in the art would also expect related organisms (i.e., from bacterial genus *Aquifex*) to

share functional and structural similarities, including similarities in the structure and function of individual genes.

With regard to claim 9, applicants submit that the same expectation would apply to nucleic acid molecules isolated from *Aquifex aeolicus* variants. That is, given the relatedness of the organisms, persons of skill in the art would expect that the nucleic acids encoding delta prime subunits would be structurally similar and encode functional equivalents. Thus, the species of SEQ ID NO: 125 would be expected to represent the small genus of variants encompassed by the claim.

Given the above, applicants respectfully submit that the present application provides written descriptive support for the claimed subject matter. Therefore, the rejection of claims 1, 2, 6-16 for lack of written description should be withdrawn.

The rejection of claims 1, 2, and 6-16 under 35 U.S.C. §112 (first paragraph) for lack of enablement is respectfully traversed.

It is the position of the PTO that the specification does not provide sufficient guidance for making and using other delta prime subunit-encoding DNA molecules within the scope of the claims. Applicants respectfully disagree.

Because the application adequately describes the presently claimed genus, persons of skill in the art would be fully able to obtain other polynucleotides encoding other delta prime subunits within the claimed genus, and prepare DNA constructs, vectors, and host cells in the manner described in the specification.

The present application provides the nucleotide sequence of *Aquifex aeolicus holB* (e.g., SEQ ID NO: 125) and describes how one of ordinary skill can isolate homologs of the disclosed sequence (*see* page 41, line 9 to page 42, line 29; Example 20), express the delta prime subunit encoded by such homologous *holB* sequences (*see* Example 20), and test the encoded delta prime subunit for clamp loader assembly competence (*see* Examples 24 and 25) and for clamp loader activity (*see* Examples 26 and 30). Thus, one of ordinary skill in the art would have been fully able to make and use DNA molecules and their encoded proteins within the scope of the presently claimed invention.

In view of all of the foregoing, applicants submit that the rejection of claims 1, 2, and 6-16 for lack of enablement is improper and should be withdrawn.

In view of all of the foregoing, applicant submits that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

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/Edwin V. Merkel/  
Edwin V. Merkel  
Registration No. 40,087

NIXON PEABODY LLP  
Clinton Square, P.O. Box 31051  
Rochester, New York 14603-1051  
Telephone: (585) 263-1128  
Facsimile: (585) 263-1600